

Appl. No. 10/030,735
 Amdt. dated November 11, 2005
 Amendment and Reply under 37 CFR 1.116 Expedited
 Procedure Examining Group 1644

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A peptide consisting of the sequence ~~R₁-X₁-V-R-~~
~~X₄-R₂ R₁-X₁-X₂-X₃-X₄-R₂~~ or partial or full retro-inverso sequences thereof, wherein X₁ is
selected from the group consisting of N, Q, and D; X₂ is V; X₃ is R; and X₄ is L; the X₁-V-R-X₄
sequence is selected from the group consisting of N-V-R-L (SEQ ID NO:57), N-V-R-F (SEQ ID
NO: 51), Q-V-R-L (SEQ ID NO: 80), Q-V-R-F (SEQ ID NO:53), and D-V-R-L (SEQ ID
NO:102); R₁ is a hydrogen or from 1 to 6 amino acids, an acyl or an aryl group; and R₂ is from 1
 to 3 amino acids, a hydroxide or an amide, provided that the peptide binds $\alpha 3 \beta 1$ integrin ~~and~~
~~does not comprise the sequence FQGV LQNVR FVF (SEQ ID NO:6).~~

2. (Currently amended) The peptide of claim 1, wherein the peptide
 contains the ~~X₁-V-R-X₄~~ sequence X₁-X₂-X₃-X₄ and is up to 12 amino acids in length.

3. (Previously presented) The peptide of claim 1 wherein R₁ is a peptide
 consisting of the sequence selected from the group consisting of FQGV LQ (SEQ ID NO:13),
 FAGVLQ (SEQ ID NO:14), FQGVAQ (SEQ ID NO:15), FQGVLA (SEQ ID NO:16), and
 FQGV LN (SEQ ID NO:17).

4. (Previously presented) A peptide that binds $\alpha 3 \beta 1$ integrin, wherein said
 peptide consists of a sequence selected from the group consisting of FQGV LQQVR FVF (SEQ
 ID NO:20), FQGV LQSVR FVF (SEQ ID NO:21), acQGV LQNVR F (SEQ ID NO:22),
 FQGV LNNVR FVF (SEQ ID NO:24), AQGV LQNVR FVF (SEQ ID NO:25),
 FAGVLQNVR FVF (SEQ ID NO:26), FQGV AQNVR FVF (SEQ ID NO:27),

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FQGV LQNVR FVA (SEQ ID NO:28), FQGV LANVR FVF (SEQ ID NO:29), FQGV LQNVR FV (SEQ ID NO:30), QGV LQNVR FVF (SEQ ID NO:31), and FQGV LQNVR F (SEQ ID NO:32).

5. (Currently amended) ~~The A peptide of claim 1~~ consisting of the sequence $R_1-X_1-X_2-X_3-X_4-R_2$ or full retro-inverso sequences thereof, wherein X_1 is selected from the group consisting of N and Q; X_2 is V; X_3 is R; and X_4 is F; R_1 is a hydrogen or from 1 to 6 amino acids, an acyl or an aryl group; and R_2 is from 1 to 3 amino acids, a hydroxide or an amide, provided that the peptide binds $\alpha 3 \beta 1$ integrin, and wherein the $X_1-V-R-X_4$ $X_1-X_2-X_3-X_4$ portion of the sequence is optionally selected from the group consisting of NVRF (SEQ ID NO:51) and QVRF (SEQ ID NO:53).

6-7. (Cancel)

8. (Currently amended) A retro-inverso synthetic peptide consisting of the amino acid sequence, from C-terminal (left) to N-terminal (right): $ri-R'_1-X'_1-X'_2-X'_3-X'_4-R'_2$, wherein ri denotes a retro-inverso peptide sequence and all amino acids are D amino acids; wherein X_1 is selected from the group consisting of N, Q, and D; X_2 is V; X_3 is R; and X_4 is L; the $X'_1-V-R-X'_4$ sequence is selected from the group consisting of N-V-R-L (SEQ ID NO:57), N-V-R-F (SEQ ID NO: 51), Q-V-R-L (SEQ ID NO: 80), Q-V-R-F (SEQ ID NO:53), and D-V-R-L (SEQ ID NO:102); R'_1 is a hydrogen or from 1 to 6 amino acids, a hydroxide or an amide; and R'_2 is from 1 to 3 amino acids, an acyl or an aryl group.

9. (Currently amended) The peptide of claim 8, wherein the peptide contains the ~~$X'_1-V-R-X'_4$~~ sequence $X'_1-X'_2-X'_3-X'_4$ and is up to 12 amino acids in length.

10. (Previously presented) A peptide consisting of the sequence FQGV LQNVR FVF (SEQ ID NO:6) wherein every amino acid in said sequence is a D-amino acid.

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10. (Previously presented) A peptide consisting of the sequence FQGV LQNVR FVF (SEQ ID NO:6) wherein every amino acid in said sequence is a D-amino acid.

11-12. (Canceled)

13. (Previously presented) A composition comprising a peptide according to claim 1 and a pharmaceutically acceptable carrier.

14. (Previously presented) A composition comprising a peptide according to claim 1 in a sterile aqueous solution.

15-19. (Canceled)

20. (Withdrawn) An *in vitro* method of inhibiting adhesion of a cell expressing $\alpha 3 \beta 1$ integrin to an extracellular matrix comprising contacting said cell with a peptide according to claim 1.

21. (Withdrawn) The method of claim 20 wherein the extracellular matrix comprises TSP1 or laminins.

22. (Cancel)

23. (Withdrawn) The method of claim 20 wherein said cell comprises an epithelial or an endothelial cell.

24. (Withdrawn) The method of claim 20 wherein said cell is a tumor cell.

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25. (Withdrawn) The method of claim 20 wherein said cell is a breast carcinoma cell or a small cell lung carcinoma.

26. (Withdrawn) An *in vitro* method of inhibiting $\alpha 3 \beta 1$ integrin-mediated cell motility, comprising contacting a cell with a peptide according to claim 1.

27. (Canceled)

28. (Withdrawn) The method of claim 26 wherein the cell is an epithelial cell, an endothelial cell or a malignant cell.

29. (Withdrawn) An *in vitro* method of inhibiting proliferation of endothelial cells, comprising contacting said cells with a peptide according to claim 1.

30. (Withdrawn) An *in vitro* method of inhibiting proliferation of small cell lung carcinoma cells, comprising contacting said cells with a peptide according to claim 2.

31-45. (Canceled)

46. (Currently amended) A peptide consisting of the sequence R_1 -~~D-V-R-F~~- R_2 , R_1 - X_1 - X_2 - X_3 - X_4 - R_2 or ~~partial or~~ full retro-inverso sequences thereof, wherein ~~D-V-R-F~~ is SEQ ID NO:54; X_1 is D; X_2 is V; X_3 is R; and X_4 is F; R_1 is a hydrogen or from 1 to 6 amino acids, an acyl or an aryl group; and R_2 is 2 or 3 amino acids, a hydroxide or an amide, provided that the peptide binds $\alpha 3 \beta 1$ integrin.

47. (Previously presented) The peptide according to claim 46 consisting of the sequence FQGVLQDVRFVF (SEQ ID NO:19).

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48. (Previously presented) The peptide of claim 46, wherein the peptide contains the sequence DVRF (SEQ ID NO:54) and is up to 12 amino acids in length.

49. (Previously presented) The peptide of claim 46 wherein R₁ is a peptide consisting of the sequence selected from the group consisting of FQGV₁LQ (SEQ ID NO:13), FAGVLQ (SEQ ID NO:14), FQGV₁AA (SEQ ID NO:15), FQGV₁LA (SEQ ID NO:16), and FQGV₁LN (SEQ ID NO:17).

50. (Previously presented) The peptide of claim 46 that contains at least one D-amino acid.

51. (Previously presented) A composition comprising a peptide according to claim 46 and a pharmaceutically acceptable carrier.

52. (Previously presented) A composition comprising a peptide according to claim 46 in a sterile aqueous solution.

53. (Previously presented) A retro-inverso synthetic peptide consisting of the amino acid sequence, from C-terminal (left) to N-terminal (right): ri- R'₁-D-V-R-F-R'₂, wherein ri denotes a retro-inverso peptide sequence and all amino acids are D amino acids and D-V-R-F is SEQ ID NO:54; R'₁ is a hydrogen or from 1 to 6 amino acids, a hydroxide or an amide; and R'₂ is 2 or 3 amino acids, a hydroxide or an amide, provided that the peptide binds $\alpha 3 \beta 1$ integrin.

54. (Previously presented) The peptide of claim 46, wherein the peptide contains the sequence DVRF (SEQ ID NO:54) and is up to 12 amino acids in length.